

### **Abstract**

Methods for detecting a short tandem repeat polymorphism (STRP), such as fragile X syndrome, wherein PCR is used to amplify nucleic acid along the chromosome in the genomic DNA which includes all of the STRs of interest plus a substantial contiguous segment of the nucleic acid adjacent to the STRs. Single-stranded product is then obtained, and colorimetric-labeled oligonucleotides which target for (i) STRs and (ii) the contiguous DNA segment are hybridized with this single-stranded product which is then bound to a solid phase and separated from the remainder of the target material. The labeled oligonucleotide target material is recovered by treatment with base and then hybridized to a microarray having a plurality of spots containing suitable oligonucleotide probes complementary thereto. Following hybridization, colorimetric intensities of the hybridized labeled target material present at specific spots on the microarray are measured to obtain individual values which are compared with results from known control samples to accurately quantify the number of STRs in the region of interest of the DNA being analyzed.